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**REMARKS**

The Office action dated October 20, 2004 and the cited references have been carefully considered.

**Status of the Claims**

Claims 1-26 are pending.

Claims 18, 19, 21, and 22 are allowed. The Applicants wish to thank the Examiner for indicating that these claims are allowed.

Claims 20 and 23 are objected to because of the missing degree mark in the expression of degrees Celcius, but otherwise would be allowable. Claims 20 and 23 are amended to correct the missing degree mark. Therefore, these claims are now in condition for allowance. Early allowance is respectfully requested.

Claim 9 is rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with written requirement. The Applicants respectfully traverse this rejection for the reasons set forth below.

Claims 10, 12, 14, 16, and 17 are rejected under 35 U.S.C. § 112, second paragraph, allegedly as being indefinite. The Applicants respectfully traverse this rejection for the reasons set forth below.

Claim 9, 10, 12, 14, 16, and 17 would be allowable if rewritten to overcome the rejections under 35 U.S.C. § 112.

Claims 2-8, 11, 13, 15, 25, and 26 are objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 2, 3, 25, and 26 are rewritten in independent form to include all of the limitations of the base claim and any intervening claims, and are now in condition for allowance. Claims 4-8, 11, 13, and 15 depend upon either claim 2, either directly or indirectly. Therefore, claims 4-8, 11, 13, and 15 also are now in condition for allowance. Early allowance of claims 4-8, 11, 13, and 15 is respectfully requested.

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Claims 1 and 24 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. patent 6,734,631 (hereinafter "the '631 patent"). The Applicants respectfully traverse this rejection for the reasons set forth below.

**Oath and Declaration**

The oath or declaration is objected to for not being in compliance with 37 C.F.R. § 1.67(a) because some alterations were not initialed and/or dated. The Applicants will submit a new oath or declaration will be submitted as soon as it is executed by the inventors.

**Claim Rejection Under 35 U.S.C. § 112, First Paragraph**

Claim 9 is rejected under 35 U.S.C. § 112, first paragraph, allegedly as failing to comply with the written description requirement. Specifically, the Examiner stated that the particle size of the second phosphor in the range of about 1 to about 6 microns is not described in the specification. The Applicants respectfully traverse this rejection because this range of particle size of the second phosphor is described in paragraph 0017. Paragraph 0017 teaches "the particles 44 of the second phosphor have a size in the range from about 1 to about 6 micrometers, preferably from about 2 to about 6 micrometers." (Emphasis added.) Therefore, the limitation of "from about 1 micrometer to about 6 micrometers" in claim 9 is fully supported in the original specification. Allowance of claim 9 is respectfully requested.

**Claim Rejection Under 35 U.S.C. § 112, Second Paragraph**

Claims 10, 12, 14, 16, and 17 are rejected under 35 U.S.C. § 112, second paragraph, allegedly as being indefinite. Specifically, the Examiner states that "[i]t is unclear if all of the elements in the parenthesis in the formulas must be present or if at least one of the elements must be present." The Applicants respectfully traverse this rejection because a person having ordinary skill in the art of phosphors understands that a plurality of elements enclosed in a set of parentheses in a formula of a phosphor means that at least one of the elements or a combination of those elements must be present in the phosphor.

The definiteness of the language employed must be analyzed not in vacuum, but in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art. *In re Angstadt*, 190 U.S.P.Q. 214, 217 (C.C.P.A. 1976).

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The Applicants are submitting herewith a copy of pages 394-415 of the Phosphor Handbook, edited by S. Shionoya and W.M. Yen (published by CRC Press, Boca Raton, FL, 1999) to show the understanding of people of ordinary skill in the art of the convention for representing phosphor formulas. The Examiner's attention is directed to the parts that are underlined. For example, on page 394, the crystal structure of the phosphor  $3\text{Ca}_3(\text{PO}_4)_2 \cdot \text{Ca}(\text{F}, \text{Cl})_2 \cdot \text{Sb}^{3+}, \text{Mn}^{2+}$  is discussed:

"In cases where the halogen is F, Ca(II) and F atoms are situated in the same crystal plane. When the halogen is Cl, however, . . . . The configuration of (F,Cl)-apatite is the same as that of Cl-apatite."

On pages 398-399, the crystal structure and the emission characteristics of the phosphor  $(\text{Sr}, \text{Ca}, \text{Ba})_{10}(\text{PO}_4)_6\text{Cl}_2 \cdot \text{Eu}^{2+}$  are discussed:

"The  $\text{Eu}^{2+}$ -activated Sr Cl-apatite gives a sharp emission . . . . Partial replacement of Sr by Ca . . . . The emission peak shifts to 452 nm when 1 mole Sr is replaced by Ca . . . . When 1 mole each Ca and Ba replace Sr, . . . . In Figure 17, the excitation spectra of a typical Sr-Ca Cl-apatite . . . ."

Thus, it is clear that people having ordinary skill in the art of phosphors understand that a plurality of elements enclosed in a set of parentheses of a phosphor formula means at least one or a combination of those elements is present in the phosphor. Therefore, this representation of phosphor formulas does not render claims 10, 12, 14, 16, and 17 indefinite. Allowance of claims 10, 12, 14, 16, and 17 is respectfully requested.

#### **Claim Rejection Under 35 U.S.C. § 102**

Claims 1 and 24 are rejected under 35 U.S.C. § 102(e) as being anticipated by the '631 patent. The Applicants respectfully traverse this rejection because the '631 patent does not disclose each and every element of each of claims 1 and 24.

"Anticipation requires the presence in a single prior art reference disclosure each and every element of the claimed invention, *arranged as in the claim.*" *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984) (emphasis added).

The '631 patent discloses only that a phosphor coating containing at least a phosphor layer and a UV-C phosphor and a phosphor that can be excited by UV-C radiation. Column 1,

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lines 62-64. The '631 patent alternatively discloses that the UV-C phosphor is present in a first phosphor layer and the phosphor that can be excited by UV-C radiation is present in the second phosphor layer. Column 2, lines 37-40. Thus, it is clear that the '631 patent teaches that the particles of the two phosphors are located separately.

In contradistinction, claims 1 and 24 recite that each of the phosphor particle comprises at least a first phosphor and at least a second phosphor. Thus, the '631 patent does not disclose each and every element of each of claims 1 and 24.

Since the '631 patent does not disclose each and every element of each of claims 1 and 24, it does not anticipate claims 1 and 24.

Respectfully submitted,



Toan P. Vo, Ph.D.  
Attorney for the Applicants  
Registration No. 43,225  
(518)387-6648

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